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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/757,340	01/13/2004	Richard T. Sharpe	60877-045	3484

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EXAMINER	
MULL, FRED H	

ART UNIT	PAPER NUMBER
3662	

DATE MAILED: 03/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/757,340	SHARPE ET AL.	
	Examiner	Art Unit	
	Fred H. Mull	3662	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 December 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☐ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) *1-8,10 and 12-19* is/are rejected.

7)☐ Claim(s) *9,11 and 20* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *01/13/2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *12/17/2004*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1-8, 10, and 12-19 are rejected under 35 U.S.C. 102(b) as being anticipated by Allison.

In regard to claims 1 and 18, Allison discloses determining a position of the user (col. 26, lines 42-50); computing a theoretical range from the user to the satellite based on the position of the user (col. 27, lines 5-10); computing an initial ambiguity value based on the theoretical range and the carrier-phase measurement (col. 26, lines 64-68); and determining the floating ambiguity value using the initial ambiguity value (col. 27, lines 18-23; col. 13, lines 26-32).

In regard to claim 2, Allison further discloses using the ambiguity integer values from a prior operation as long as signal lock has been maintained (col. 3, lines 28-33).

In regard to claims 3 and 19, Allison further discloses the position of the user is determined by using a real-time kinematic system including the user, a reference station and a radio link between the user and the reference station (col. 7, lines 55-68).

In regard to claim 4, Allison further discloses determining the position of the user comprises: resolving integer ambiguities associated with a set of differential carrier-

phase measurements between the user and the reference station; and computing the position of the user using the resolved integer ambiguities (col. 22, lines 24-42).

In regard to claim 5, Allison further discloses determining the position of the user comprises: determining a position of the user relative to the reference station; receiving information regarding a position of the reference station; and determining an absolute position of the user based on position of the user relative to the reference station and the information regarding the position of the reference station (col. 22, lines 24-42).

In regard to claim 6, Allison further discloses the carrier-phase measurement is refraction-corrected (col. 13, lines 31-35).

In regard to claim 7, Allison further discloses adjusting a carrier-phase measurement at each of a series of measurement epochs using the initial ambiguity value; and computing the floating ambiguity value using the adjusted carrier-phase measurements (col. 20, lines 58-68).

In regard to claim 8, Allison further discloses the floating ambiguity value is computed by taking an expanding average of an offset between the adjusted carrier-phase measurement and a corresponding code measurement at each of the series of measurement epochs (col. 13, lines 17-24 and 37-47).

In regard to claim 10, Allison further discloses the carrier-phase measurements and the code measurements are refraction-corrected (col. 13, lines 31-35).

In regard to claim 12, Allison discloses determining a first position of the object based on information received from the local reference receiver (col. 12, lines 29-37); determining floating ambiguity values associated with carrier-phase measurements

obtained at the object using the first position of the object (col. 26, lines 64-68; col. 27, lines 18-23; col. 13, lines 26-32); and determining a second position of the object based on information received from the wide-area satellite positioning system and the floating ambiguity values (col. 26, lines 42-50).

In regard to claim 13, Allison further discloses receiving a position of the local reference station from the wide-area satellite positioning system (col. 12, lines 29-37); transforming the first position to an absolute position using the position of the local reference receiver before determining the floating ambiguity values (col. 26, lines 64-68; col. 27, lines 18-23); and transforming the second position to a position relative to the local reference receiver using the position of the local reference station (col. 26, lines 42-50).

In regard to claim 14, Allison further discloses determining the floating ambiguity values comprises computing initial floating ambiguity values using the first position (col. 26, lines 64-68).

In regard to claim 15, Allison further discloses computing initial floating ambiguity values comprises computing theoretical ranges between the object and a plurality of satellites (col. 27, lines 5-10).

In regard to claim 16, Allison further discloses determining the floating ambiguity values comprises adjusting the carrier-phase measurements with the initial floating ambiguity values (col. 20, lines 58-68).

In regard to claim 17, Allison further discloses determining the floating ambiguity values comprises smoothing code measurements with the adjusted carrier-phase measurements (col. 27, lines 18-23).

Allowable Subject Matter

2. Claim(s) 9, 11, and 20 is/are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Fred H. Mull whose telephone number is 703-305-1250. The examiner can normally be reached on M-F 9:00 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas H. Tarcza can be reached on 703-360-4171. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Effective approximately April 5, 2005, the following new telephone numbers will be in effect: Fred H. Mull: 571-272-6975, Thomas H. Tarcza: 571-272-6979.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Fred H. Mull
Examiner
Art Unit 3662

fhm

Thomas H. Tarcza

THOMAS H. TARCZA
SUPERVISORY PATENT EXAMINER
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